



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/623,906

07/21/2003

Franciscus Gerardus Johannes Claassen

D/A3211

7673

25453

7590

10/11/2006

PATENT DOCUMENTATION CENTER

XEROX CORPORATION

100 CLINTON AVE., SOUTH, XEROX SQUARE, 20TH FLOOR

ROCHESTER, NY 14644

EXAMINER

HOANG, ANN THI

ART UNIT

PAPER NUMBER

2836

DATE MAILED: 10/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/623,906

Applicant(s)

CLAASSEN, FRANCISCUS
GERARDUS JOHANNES

Examiner

Ann T. Hoang

Art Unit

2836

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 July 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,7-11 and 16-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,7-11 and 16-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1,2 and 7-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wright (US 5,479,087).

Regarding claim 1, Wright discloses a power supply (108) accepting a mains voltage (110) as an input and outputting a first predetermined voltage (+12V) from a first terminal and a second predetermined voltage (+5V) from a second terminal, comprising:

a main circuit for deriving the first predetermined voltage (+12V) from the mains voltage (110);

a secondary circuit for deriving the second predetermined voltage (+5V) from the main circuit; and

a preload circuit (169) applying a preload on the main circuit as a result of the secondary circuit going out of control, the preload circuit (169) including an output directly to the second terminal.

See Fig. 3. The main circuit derives the first predetermined voltage (+12V) through a secondary winding (118) of a transformer (T3) and elements (122-138), which include filters and storage components. The secondary circuit derives the second

Art Unit: 2836

predetermined voltage (+5V) through a secondary winding (120) of the transformer (T3) and elements (132, 142-156), which include filters and storage components.

The secondary circuit also derives the second predetermined voltage (+5V) from excess voltage in the main circuit. The preload circuit (169) draws power from the main circuit to the secondary circuit during flyback cycles of the power supply (108), as well as when the main circuit is under little or no load and a maximum load appears in the secondary circuit. See 10:47-56. It is understood that instances during which an extremely heavy or maximum load appears in the secondary circuit would cause the secondary circuit to go out of control and that those instances would thus be characterized as instances during which the secondary circuit is going out of control.

The output of the preload circuit (169) is a source terminal of a transistor (140) practically coupled directly to the second terminal. Fig. 3 shows a filter inductor (154) between the output of the preload circuit (169) and the second terminal, which the reference says can be ignored. See 8:25-36.

Wright discloses feedback control for the secondary circuit, coupled to the second terminal. See Fig. 3 and 9:22-67. The reference does not disclose that the feedback control for the secondary circuit in Fig. 3 includes a magamp controller.

However, the reference discloses the use of a magamp controller (40) as a prior art method of regulating an output of a power supply. The magamp controller (40) is described as providing "good regulation...to maintain the output voltage within a specified voltage range under most load conditions," but "very costly." See Fig. 1B and 3:10-34. It would have been obvious to one of ordinary skill in the art at the time of the

invention to replace the feedback control for the secondary circuit of Fig. 3 with the magamp controller of Fig. 1B in order to provide effective regulation of the output voltage, especially in instances where the quality of output voltage regulation offered by a magamp controller was a priority over cost effectiveness. The magamp controller would serve as a post regulator circuit to the output of the secondary circuit.

Wright discloses that the preload circuit (169) includes an output directly to the second terminal. See Fig. 3 and 8:25-36. Since the magamp controller (40) would be coupled to the second terminal when replacing the feedback control for the secondary circuit of Fig. 3, as discussed above, the output of the preload circuit (169) would be directly coupled to the second terminal and an input from the magamp controller.

Regarding claim 2, Wright discloses that the main circuit includes a transformer (T3). See Fig. 3.

Regarding claim 7, Wright discloses that the preload circuit (169) includes a voltage-controlled current source operatively interposed between the main circuit and the secondary circuit. Since the preload circuit (169) supplies current to the secondary circuit depending on the cycling of power supply (108) as well as the voltages of the first and second terminals, the preload circuit (169) is a voltage-controlled current source. See 10:47-56.

Regarding claim 8, Wright discloses that the voltage-controlled current source includes a transistor (140) having a base, the base of the transistor (140) being controlled by a transistor (160), which is associated with a storage inductor (130) on the first terminal, which is controlled by a storage inductor (132) on the second terminal.

See Fig. 3 and 8:14-49. Thus, the base of the transistor (140) is associated with the second terminal and would be associated with the magamp controller coupled to the second terminal, as discussed above. See above rejection on claim 1.

Regarding claim 9, Wright does not disclose a zener diode operatively disposed at the base of the transistor (140) of Fig. 3.

However, the reference discloses a zener diode (96) operatively disposed between the base of a transistor (82) and a controller (70) of the transistor (82) in an alternative embodiment of the power supply. See Fig. 2 and 6:32-38. The zener diode (96) protects the transistor (82), which operates similarly to the transistor (140) of Fig. 3, by limiting the voltage at its gate. It would have been obvious to one of ordinary skill in the art at the time of the invention to operatively dispose the zener diode of Fig. 2 between the base of the transistor of Fig. 3 and the magamp controller of the post regulated circuit in order to protect the transistor by limiting the voltage at its gate.

Regarding claim 10, it is understood that the secondary circuit goes out of control as a result of the load on the first terminal being relatively low and a load on the second terminal being relatively high. See above rejection on claim 1.

Regarding claim 11, Wright discloses that the main circuit includes a transformer (T3), and that the secondary circuit derives a second predetermined voltage (+5V) from the transformer (T3) in the main circuit. The secondary circuit derives the second predetermined voltage (+5V) at least through a secondary winding (120) of the transformer (T3) and elements (132, 142-156), which include filters and storage components. See Fig. 3.

Art Unit: 2836

3. Claims 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wright (US 5,479,087) in view of Chapman et al. (US 6,370,354).

Regarding claim 16, Wright discloses a power supply (108) as recited in claim 1 of the present application. See above rejection on claim 1. The power supply (108) is disclosed as being part of a computer system, not a printing apparatus.

However, Chapman et al. discloses a printing apparatus (10) comprising a motor and a printhead (20). See Fig. 1, 6:46-48, and 9:38. The reference also discloses a power supply (312) of the printing apparatus (10) having multiple output terminals at different voltage levels for providing power to various parts of the printing apparatus (10). See Fig. 11 and 17:37-42. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the power supply (108) of Wright in the printing apparatus (10) of Chapman et al., powering the motor with one terminal of power supply and powering the printhead with the other terminal, in order to provide a highly efficient power regulation circuit for the printing apparatus.

Regarding claim 17, the magamp controller, used as a feedback mechanism in the secondary circuit, would serve as a post regulator circuit to the output of the secondary circuit of power supply (108).

Regarding claims 18-20, claims 18-20 correspond to claims 7, 10 and 11, respectively, and are therefore rejected under the same reasoning as that of those claims. See above rejections.

Response to Arguments

4. Applicant's arguments filed 7/31/06 have been fully considered but they are not persuasive.

Regarding Applicant's argument that claim 1 is not obvious in view of Wright for reasons of the "coupled-inductor topology" of Wright being different from the magamp control of the secondary circuit of the claimed invention, and more specifically that Fig. 1B of Wright shows a magamp feedback loop for the main circuit instead of the secondary circuit: Examiner asserts that, although Fig. 1B shows the magamp feedback loop in a circuit with a 12V output, which would appear to correspond to the main circuit with a 12V output of Fig. 3, the disclosure of the magamp feedback loop would suggest to one of ordinary skill in the art that magamp controllers provide "good regulation...to maintain the output voltage within a specified voltage range under most load conditions," (see 3:10-34) and in general provide effective regulation of output voltage to power supplies regardless of the output voltage. Also note that the arrangement of the main and secondary circuits are largely similar in Figs. 2 and 3 of Wright. Thus, the disclosure of the magamp controller of Fig. 1B would motivate one of ordinary skill in the art to use a magamp controller as feedback in a power supply circuit regardless of the output voltage, or regardless of whether the power supply circuit was main or secondary, and the magamp controller would conceivably be used as feedback for a secondary circuit in instances where the quality of output voltage regulation offered by a magamp controller was a priority over cost effectiveness. Since the feedback circuit of the secondary circuit in Fig. 3 is used for "out-of-control" situations in the secondary

circuit, replacement of the shown feedback circuit with a magamp controller, such as that in Fig. 1B, would remove the output of the feedback control signal to the input side of a main transformer of Fig. 3 and replace it with the magamp control for overcoming "out-of-control" situations.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ann T. Hoang, whose telephone number is 571-272-2724. The examiner can normally be reached Mondays through Fridays, 8:00 a.m. to 5:00 p.m.

Art Unit: 2836

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus, can be reached at 571-272-2800 x36. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ATH
9/29/06



BRIAN SIRCUS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800